



7/13

SEQUENCE LISTING

<110> Ian Popoff  
Jacqueline Wyatt

<120> ANTISENSE MODULATION OF DAMAGE-SPECIFIC DNA BINDING PROTEIN 1, P127  
EXPRESSION

<130> RTS-0182

<140> US/09/731,457

<141> 2000-12-06

<160> 87

<210> 1

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 1

tccgtcatcg ctcctcaggg

20

<210> 2

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 2

atgcattctg cccccaagga

20

<210> 3

<211> 4193

<212> DNA

<213> Homo sapiens

<220>

<220>

<221> CDS

<222> (101)...(3523)

<400> 3

gtggagttcg ctgcggctgt tggggggccac ctgtcttttc gottgtgccc ctctttctag

60

tgtcgcgctc	gagtcgccgac	gggccgctcc	aagcctcgac	atg	tgc	tac	aac	tac	115							
				Met	Ser	Tyr	Asn	Tyr								
				1				5								
gtg	gta	acg	gcc	cag	aag	ccc	acc	gcc	gtg	aac	ggc	tgc	gtg	acc	gga	163
Val	Val	Thr	Ala	Gln	Lys	Pro	Thr	Ala	Val	Asn	Gly	Cys	Val	Thr	Gly	
			10						15					20		
cac	ttt	act	tgc	gcc	gaa	gac	tta	aac	ctg	ttg	att	gcc	aaa	aac	acg	211
His	Phe	Thr	Ser	Ala	Glu	Asp	Leu	Asn	Leu	Leu	Ile	Ala	Lys	Asn	Thr	
			25					30					35			
aga	tta	gag	atc	tat	gtg	gtc	acc	gcc	gag	ggg	ctt	cgg	ccc	gtc	aaa	259
Arg	Leu	Glu	Ile	Tyr	Val	Val	Thr	Ala	Glu	Gly	Leu	Arg	Pro	Val	Lys	
			40				45					50				
gag	gtg	ggc	atg	tat	ggg	aag	att	gcg	gtc	atg	gag	ctt	ttc	agg	ccc	307
Glu	Val	Gly	Met	Tyr	Gly	Lys	Ile	Ala	Val	Met	Glu	Leu	Phe	Arg	Pro	
	55					60					65					
aag	ggg	gag	agc	aag	gac	ctg	ctg	ttt	atc	ttg	aca	gcg	aag	tac	aat	355
Lys	Gly	Glu	Ser	Lys	Asp	Leu	Leu	Phe	Ile	Leu	Thr	Ala	Lys	Tyr	Asn	
	70				75				80						85	
gcc	tgc	atc	ctg	gag	tat	aaa	cag	agt	ggc	gag	agc	att	gac	atc	att	403
Ala	Cys	Ile	Leu	Glu	Tyr	Lys	Gln	Ser	Gly	Glu	Ser	Ile	Asp	Ile	Ile	
			90						95					100		
acg	cga	gcc	cat	ggc	aat	gtc	cag	gac	cgc	att	ggc	cgc	ccc	tca	gag	451
Thr	Arg	Ala	His	Gly	Asn	Val	Gln	Asp	Arg	Ile	Gly	Arg	Pro	Ser	Glu	
			105					110					115			
acc	ggc	att	att	ggc	atc	att	gac	cct	gag	tgc	cgg	atg	att	ggc	ctg	499
Thr	Gly	Ile	Ile	Gly	Ile	Ile	Asp	Pro	Glu	Cys	Arg	Met	Ile	Gly	Leu	
		120					125					130				
cgt	ctc	tat	gat	ggc	ctt	ttc	aag	gtt	att	cca	cta	gat	cgc	gat	aat	547
Arg	Leu	Tyr	Asp	Gly	Leu	Phe	Lys	Val	Ile	Pro	Leu	Asp	Arg	Asp	Asn	
	135					140						145				
aaa	gaa	ctc	aag	gcc	ttc	aac	atc	cgc	ctg	gag	gag	ctg	cat	gtc	att	595
Lys	Glu	Leu	Lys	Ala	Phe	Asn	Ile	Arg	Leu	Glu	Glu	Leu	His	Val	Ile	
	150				155				160					165		
gat	gtc	aag	ttc	cta	tat	ggg	tgc	caa	gca	cct	act	att	tgc	ttt	gtc	643
Asp	Val	Lys	Phe	Leu	Tyr	Gly	Cys	Gln	Ala	Pro	Thr	Ile	Cys	Phe	Val	
				170				175						180		
tac	cag	gac	cct	cag	ggg	cgg	cac	gta	aaa	acc	tat	gag	gtg	tct	ctc	691
Tyr	Gln	Asp	Pro	Gln	Gly	Arg	His	Val	Lys	Thr	Tyr	Glu	Val	Ser	Leu	
			185					190					195			
cga	gaa	aag	gaa	ttc	aat	aag	ggc	cct	tgg	aaa	cag	gaa	aat	gtc	gaa	739
Arg	Glu	Lys	Glu	Phe	Asn	Lys	Gly	Pro	Trp	Lys	Gln	Glu	Asn	Val	Glu	
		200					205					210				
gct	gaa	gct	tcc	atg	gtg	atc	gca	gtc	cca	gag	ccc	ttt	ggg	ggg	gcc	787

Ala Glu Ala Ser Met Val Ile Ala Val Pro Glu Pro Phe Gly Gly Ala	
215 220 225	
atc atc att gga cag gag tca atc acc tat cac aat ggt gac aaa tac	835
Ile Ile Ile Gly Gln Glu Ser Ile Thr Tyr His Asn Gly Asp Lys Tyr	
230 235 240 245	
ctg gct att gcc cct cct atc atc aag caa agc acg att gtg tgc cac	883
Leu Ala Ile Ala Pro Pro Ile Ile Lys Gln Ser Thr Ile Val Cys His	
250 255 260	
aat cga gtg gac cct aat ggc tca aga tac ctg ctg gga gac atg gaa	931
Asn Arg Val Asp Pro Asn Gly Ser Arg Tyr Leu Leu Gly Asp Met Glu	
265 270 275	
ggc cgg ctc ttc atg ctg ctt ttg gag aag gag gaa cag atg gat ggc	979
Gly Arg Leu Phe Met Leu Leu Leu Glu Lys Glu Glu Gln Met Asp Gly	
280 285 290	
acc gtc act ctc aag gat ctc cgt gta gaa ctc ctt gga gag acc tct	1027
Thr Val Thr Leu Lys Asp Leu Arg Val Glu Leu Leu Gly Glu Thr Ser	
295 300 305	
att gct gag tgc ttg aca tac ctt gat aat ggt gtt gtg ttt gtc ggg	1075
Ile Ala Glu Cys Leu Thr Tyr Leu Asp Asn Gly Val Val Phe Val Gly	
310 315 320 325	
tct cgc ctg ggt gac tcc cag ctt gtg aag ctc aac gtt gac agt aat	1123
Ser Arg Leu Gly Asp Ser Gln Leu Val Lys Leu Asn Val Asp Ser Asn	
330 335 340	
gaa caa ggc tcc tat gta gtg gcc atg gaa acc ttt acc aac tta gga	1171
Glu Gln Gly Ser Tyr Val Val Ala Met Glu Thr Phe Thr Asn Leu Gly	
345 350 355	
ccc att gtc gat atg tgc gtg gtg gac ctg gag agg cag ggg cag ggg	1219
Pro Ile Val Asp Met Cys Val Val Asp Leu Glu Arg Gln Gly Gln Gly	
360 365 370	
cag ctg gtc act tgc tct ggg gct ttc aag gaa ggt tct ttg cgg atc	1267
Gln Leu Val Thr Cys Ser Gly Ala Phe Lys Glu Gly Ser Leu Arg Ile	
375 380 385	
atc cgg aat gga att gga atc cac gag cat gcc agc att gac tta cca	1315
Ile Arg Asn Gly Ile Gly Ile His Glu His Ala Ser Ile Asp Leu Pro	
390 395 400 405	
ggc atc aaa gga tta tgg cca ctg cgg tct gac cct aat cgt gag act	1363
Gly Ile Lys Gly Leu Trp Pro Leu Arg Ser Asp Pro Asn Arg Glu Thr	
410 415 420	
gat gac act ttg gtg ctc tct ttt gtg ggc cag aca aga gtt ctc atg	1411
Asp Asp Thr Leu Val Leu Ser Phe Val Gly Gln Thr Arg Val Leu Met	
425 430 435	
tta aat gga gag gag gta gaa gaa acc gaa ctg atg ggt ttc gtg gat	1459
Leu Asn Gly Glu Glu Val Glu Glu Thr Glu Leu Met Gly Phe Val Asp	

440	445	450	
gat cag cag act ttc ttc tgt ggc aac gtg gct cat cag cag ctt atc Asp Gln Gln Thr Phe Phe Cys Gly Asn Val Ala His Gln Gln Leu Ile 455 460 465			1507
cag atc act tca gca tgc gtg agg ttg gtc tct caa gaa ccc aaa gct Gln Ile Thr Ser Ala Ser Val Arg Leu Val Ser Gln Glu Pro Lys Ala 470 475 480 485			1555
ctg gtc agt gaa tgg aag gag cct cag gcc aag aac atc agt gtg gcc Leu Val Ser Glu Trp Lys Glu Pro Gln Ala Lys Asn Ile Ser Val Ala 490 495 500			1603
tcc tgc aat agc agc cag gtg gtg gtg gct gta ggc agg gcc ctc tac Ser Cys Asn Ser Ser Gln Val Val Val Ala Val Gly Arg Ala Leu Tyr 505 510 515			1651
tat ctg cag atc cat cct cag gag ctc cgg cag atc agc cac aca gag Tyr Leu Gln Ile His Pro Gln Glu Leu Arg Gln Ile Ser His Thr Glu 520 525 530			1699
atg gaa cat gaa gtg gct tgc ttg gac atc acc cca tta gga gac agc Met Glu His Glu Val Ala Cys Leu Asp Ile Thr Pro Leu Gly Asp Ser 535 540 545			1747
aat gga ctg tcc cct ctt tgt gcc att ggc ctc tgg acg gac atc tgc Asn Gly Leu Ser Pro Leu Cys Ala Ile Gly Leu Trp Thr Asp Ile Ser 550 555 560 565			1795
gct cgt atc ttg aag ttg ccc tct ttt gaa cta ctg cac aag gag atg Ala Arg Ile Leu Lys Leu Pro Ser Phe Glu Leu Leu His Lys Glu Met 570 575 580			1843
ctg ggt gga gag atc att cct cgc tcc atc ctg atg acc acc ttt gag Leu Gly Gly Glu Ile Ile Pro Arg Ser Ile Leu Met Thr Thr Phe Glu 585 590 595			1891
agt agc cat tac ctc ctt tgt gcc ttg gga gat gga gcg ctt ttc tac Ser Ser His Tyr Leu Leu Cys Ala Leu Gly Asp Gly Ala Leu Phe Tyr 600 605 610			1939
ttt ggg ctc aac att gag aca ggt ctg ttg agc gac cgt aag aag gtg Phe Gly Leu Asn Ile Glu Thr Gly Leu Leu Ser Asp Arg Lys Lys Val 615 620 625			1987
act ttg ggc acc cag ccc acc gta ttg agg act ttt cgt tct ctt tct Thr Leu Gly Thr Gln Pro Thr Val Leu Arg Thr Phe Arg Ser Leu Ser 630 635 640 645			2035
acc acc aac gtc ttt gct tgt tct gac cgc ccc act gtc atc tat agc Thr Thr Asn Val Phe Ala Cys Ser Asp Arg Pro Thr Val Ile Tyr Ser 650 655 660			2083
agc aac cac aaa ttg gtc ttc tca aat gtc aac ctc aag gaa gtg aac Ser Asn His Lys Leu Val Phe Ser Asn Val Asn Leu Lys Glu Val Asn 665 670 675			2131

tac atg tgt ccc ctc aat tca gat ggc tat cct gac agc ctg gcg ctg	2179
Tyr Met Cys Pro Leu Asn Ser Asp Gly Tyr Pro Asp Ser Leu Ala Leu	
680 685 690	
gcc aac aat agc acc ctc acc att ggc acc atc gat gag atc cag aag	2227
Ala Asn Asn Ser Thr Leu Thr Ile Gly Thr Ile Asp Glu Ile Gln Lys	
695 700 705	
ctg cac att cgc aca gtt ccc ctc tat gag tct cca agg aag atc tgc	2275
Leu His Ile Arg Thr Val Pro Leu Tyr Glu Ser Pro Arg Lys Ile Cys	
710 715 720 725	
tac cag gaa gtg tcc cag tgt ttc ggg gtc ctc tcc agc cgc att gaa	2323
Tyr Gln Glu Val Ser Gln Cys Phe Gly Val Leu Ser Ser Arg Ile Glu	
730 735 740	
gtc caa gac acg agt ggg ggc acg aca gcc ttg agg ccc agc gct agc	2371
Val Gln Asp Thr Ser Gly Gly Thr Thr Ala Leu Arg Pro Ser Ala Ser	
745 750 755	
acc cag gct ctg tcc agc agt gta agc tcc agc aag ctg ttc tcc agc	2419
Thr Gln Ala Leu Ser Ser Ser Val Ser Ser Ser Lys Leu Phe Ser Ser	
760 765 770	
agc act gct cct cat gag acc tcc ttt gga gaa gag gtg gag gtg cac	2467
Ser Thr Ala Pro His Glu Thr Ser Phe Gly Glu Glu Val Glu Val His	
775 780 785	
aac cta ctt atc att gac caa cac acc ttt gaa gtg ctt cat gcc cac	2515
Asn Leu Leu Ile Ile Asp Gln His Thr Phe Glu Val Leu His Ala His	
790 795 800 805	
cag ttt ctg cag aat gaa tat gcc ctc agt ctg gtt tcc tgc aag ctg	2563
Gln Phe Leu Gln Asn Glu Tyr Ala Leu Ser Leu Val Ser Cys Lys Leu	
810 815 820	
ggc aaa gac ccc aac act tac ttc att gtg ggc aca gca atg gtg tat	2611
Gly Lys Asp Pro Asn Thr Tyr Phe Ile Val Gly Thr Ala Met Val Tyr	
825 830 835	
cct gaa gag gca gag ccc aag cag ggt cgc att gtg gtc ttt cag tat	2659
Pro Glu Glu Ala Glu Pro Lys Gln Gly Arg Ile Val Val Phe Gln Tyr	
840 845 850	
tcg gat gga aaa cta cag act gtg gct gaa aag gaa gtg aaa ggg gcc	2707
Ser Asp Gly Lys Leu Gln Thr Val Ala Glu Lys Glu Val Lys Gly Ala	
855 860 865	
gtg tac tct atg gtg gaa ttt aac ggg aag ctg tta gcc agc atc aat	2755
Val Tyr Ser Met Val Glu Phe Asn Gly Lys Leu Leu Ala Ser Ile Asn	
870 875 880 885	
agc acg gtg cgg ctc tat gag tgg aca aca gag aag gag ctg cgc act	2803
Ser Thr Val Arg Leu Tyr Glu Trp Thr Thr Glu Lys Glu Leu Arg Thr	
890 895 900	

gag tgc aac cac tac aac aac atc atg gcc ctc tac ctg aag acc aag	2851
Glu Cys Asn His Tyr Asn Asn Ile Met Ala Leu Tyr Leu Lys Thr Lys	
905 910 915	
ggc gac ttc atc ctg gtg ggc gac ctt atg cgc tca gtg ctg ctg ctt	2899
Gly Asp Phe Ile Leu Val Gly Asp Leu Met Arg Ser Val Leu Leu Leu	
920 925 930	
gcc tac aag ccc atg gaa gga aac ttt gaa gag att gct cga gac ttt	2947
Ala Tyr Lys Pro Met Glu Gly Asn Phe Glu Glu Ile Ala Arg Asp Phe	
935 940 945	
aat ccc aac tgg atg agt gct gtg gaa atc ttg gat gat gac aat ttt	2995
Asn Pro Asn Trp Met Ser Ala Val Glu Ile Leu Asp Asp Asp Asn Phe	
950 955 960 965	
ctg ggg gct gaa aat gcc ttt aac ttg ttt gtg tgt caa aag gat agc	3043
Leu Gly Ala Glu Asn Ala Phe Asn Leu Phe Val Cys Gln Lys Asp Ser	
970 975 980	
gct gcc acc act gac gag gag cgg cag cac ctc cag gag gtt ggt ctt	3091
Ala Ala Thr Thr Asp Glu Glu Arg Gln His Leu Gln Glu Val Gly Leu	
985 990 995	
ttc cac ctg ggc gag ttt gtc aat gtc ttt tgc cac ggc tct ctg gta	3139
Phe His Leu Gly Glu Phe Val Asn Val Phe Cys His Gly Ser Leu Val	
1000 1005 1010	
atg cag aat ctg ggt gag act tcc acc ccc aca caa ggc tcg gtg ctc	3187
Met Gln Asn Leu Gly Glu Thr Ser Thr Pro Thr Gln Gly Ser Val Leu	
1015 1020 1025	
ttc ggc acg gtc aac ggc atg ata ggg ctg gtg acc tca ctg tca gag	3235
Phe Gly Thr Val Asn Gly Met Ile Gly Leu Val Thr Ser Leu Ser Glu	
1030 1035 1040 1045	
agc tgg tac aac ctc ctg ctg gac atg cag aat cga ctc aat aaa gtc	3283
Ser Trp Tyr Asn Leu Leu Leu Asp Met Gln Asn Arg Leu Asn Lys Val	
1050 1055 1060	
atc aaa agt gtg ggg aag atc gag cac tcc ttc tgg aga tcc ttt cac	3331
Ile Lys Ser Val Gly Lys Ile Glu His Ser Phe Trp Arg Ser Phe His	
1065 1070 1075	
acc gag cgg aag aca gaa cca gcc aca ggt ttc atc gac ggt gac ttg	3379
Thr Glu Arg Lys Thr Glu Pro Ala Thr Gly Phe Ile Asp Gly Asp Leu	
1080 1085 1090	
att gag agt ttc ctg gat att agc cgc ccc aag atg cag gag gtg gtg	3427
Ile Glu Ser Phe Leu Asp Ile Ser Arg Pro Lys Met Gln Glu Val Val	
1095 1100 1105	
gca aac cta cag tat gac gat ggc agc ggt atg aag cga gag gcc act	3475
Ala Asn Leu Gln Tyr Asp Asp Gly Ser Gly Met Lys Arg Glu Ala Thr	
1110 1115 1120 1125	
gca gac gac ctc atc aag gtt gtg gag gag cta act cgg atc cat tag	3523

Ala Asp Asp Leu Ile Lys Val Val Glu Glu Leu Thr Arg Ile His  
 1130 1135 1140

ccaagggcag ggggccccct ttctgacct ccccaaaggc ttgcectgc tgcctcccc 3583  
 ctctctcca ccctgtctt ctggccatg ggaggcctt ccctaagcca gctgccccca 3643  
 gagccacagt tcccctatgt ggaagtgggg cgggcttcat agagacttg gaatgagctg 3703  
 aaggtgaaac attttctccc tggattttta ccagtctcac atgattccag ccatcacctt 3763  
 agaccaccaa gccttgattg gtgttgccag ttgtctctt tccggggaag gattttgcag 3823  
 ttctttggct gaaaggaagc tgtgctgtg tgtgtgtgta tgtgtgtgtg tgtatgtgta 3883  
 tctcacactc atgcaatgtc ctctttttat ttagattggc agtgtagggg gttgtgggta 3943  
 gtggggaaga gggtaggag ggtttcattg tctgtgaagt gagaccttc ttttactttt 4003  
 cttctattgc ctctgagagc atcagcctag aggcctgact gccaaagccat gggtagcctg 4063  
 ggtgtaaaac ctggagatgg tggatgatcc ccacgccaca gcccttttgt ctctgcaaac 4123  
 tgccttcttc ggaaagaaga aggtgggagg atgtgaattg ttagtttctg agttttacca 4183  
 aataaagtag 4193

<210> 4  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> PCR Primer

<400> 4  
 tcacaccgag cggaagaca 19

<210> 5  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> PCR Primer

<400> 5  
 aatatccagg aaactctcaa tcaagtc 27

<210> 6  
 <211> 25  
 <212> DNA

<213> Artificial Sequence

<220>

<223> PCR Probe

<400> 6

aaccagccac aggtttcatc gacgg

25

<210> 7

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 7

gaaggtgaag gtcggagtc

19

<210> 8

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 8

gaagatggtg atgggatttc

20

<210> 9

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Probe

<400> 9

caagcttccc gttctcagcc

20

<210> 10

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide



<400> 10  
caagcgaaaa gacaggtggc 20

<210> 11  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 11  
ggactcgagc gcgacactag 20

<210> 12  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 12  
gttgtacgac atgtcgaggc 20

<210> 13  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 13  
gaagtaaagt gtccggtcac 20

<210> 14  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 14  
tgaccacata gatctctaata 20

<210> 15  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 15  
gctctccccc ttgggcctga 20

<210> 16  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 16  
tcctggacat tgccatgggc 20

<210> 17  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 17  
ctcagggtca atgatgccaa 20

<210> 18  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 18  
catagagacg caggccaatc 20

<210> 19  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 19

aggaacttga catcaatgac

20

<210> 20

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 20

tcctggtaga caaagcaa

20

<210> 21

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 21

tcatagggtt ttacgtgccg

20

<210> 22

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 22

agagacacct cataggtttt

20

<210> 23

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 23

tctgtgttcc aagggccctt

20

<210> 24

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 24

tgcgatcacc atggaagctt

20

<210> 25

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 25

tctgttccaa tgatgatggc

20

<210> 26

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 26

cttctccaaa agcagcatga

20

<210> 27

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 27

cttgagagtg acggtgccat

20

<210> 28

<211> 20

<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 28  
cactacatag gagccttggt 20

<210> 29  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 29  
ttggtaaagg tttccatggc 20

<210> 30  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 30  
ccagagcaag tgaccagctg 20

<210> 31  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 31  
aagtcaatgc tggcatgctc 20

<210> 32  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 32

gggtcagacc gcagtggcca

20

<210> 33

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 33

agagagcacc aaagtgtcat

20

<210> 34

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 34

tctggcccac aaaagagagc

20

<210> 35

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 35

actcttgtct ggcccacaaa

20

<210> 36

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 36

ctgatgagcc acgttgccac

20

<210> 37  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 37  
cagagctttg ggttcttgag 20

<210> 38  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 38  
gaggccacac tgatgttctt 20

<210> 39  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 39  
tccatctctg tgtggctgat 20

<210> 40  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 40  
aggccaatgg cacaagagg 20

<210> 41  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 41

tccacccagc atctccttgt

20

<210> 42

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 42

ggaatgatct ctccacccag

20

<210> 43

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 43

cccaaggcac aaaggaggtta

20

<210> 44

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 44

atggttgagcc caaagtagaa

20

<210> 45

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide



<400> 45  
ggctgggtgc ccaaagtcac 20

<210> 46  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 46  
gttggtggta gaaagagaac 20

<210> 47  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 47  
gctgctatag atgacagtgg 20

<210> 48  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 48  
cacttccttg aggttgacat 20

<210> 49  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 49  
ctgtcaggat agccatctga 20

<210> 50

<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 50  
tcgatggtgc caatggtgag

20

<210> 51  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 51  
ttggacttca atgcggctgg

20

<210> 52  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 52  
tcttctccaa aggaggtctc

20

<210> 53  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 53  
tgaagcactt caaaggtgtg

20

<210> 54  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 54

gctgtgccca caatgaagta

20

<210> 55

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 55

gggctctgcc tcttcaggat

20

<210> 56

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 56

agaccacaat gcgaccctgc

20

<210> 57

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 57

ccacagtctg tagttttcca

20

<210> 58

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 58

caccgtgcta ttgatgctgg

20

<210> 59  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 59  
tcatagagcc gcaccgtgct 20

<210> 60  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 60  
agggccatga tgttggtgta 20

<210> 61  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 61  
ccaggatgaa gtcgcccttg 20

<210> 62  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 62  
aggtcgcccc ccaggatgaa 20

<210> 63  
<211> 20  
<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 63

aagcagcagc actgagcgca

20

<210> 64

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 64

gcaatctctt caaagtttcc

20

<210> 65

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 65

ccagttggga ttaaagtctc

20

<210> 66

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 66

aaattgtcat catccaagat

20

<210> 67

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 67  
aacaagttaa aggcattttc 20

<210> 68  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 68  
acaaactcgc ccaggtggaa 20

<210> 69  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 69  
agcaccgagc cttgtgtggg 20

<210> 70  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 70  
tgccgttgac cgtgccgaag 20

<210> 71  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 71  
agccctatca tgccgttgac 20

<210> 72  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 72  
gatctccaga aggagtgtctc 20

<210> 73  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 73  
cctgtggctg gttctgtctt 20

<210> 74  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 74  
gctaatatcc aggaaactct 20

<210> 75  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 75  
atccgagtta gtcctccac 20

<210> 76  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 76

tggctaattg atccgagtta

20

<210> 77

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 77

tgcccttggc taatggatcc

20

<210> 78

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 78

tcaccttcag ctcattccca

20

<210> 79

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 79

tggtaaaaat ccaggagaa

20

<210> 80

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 80



aacaccaatc aaggcttggt

20

<210> 81

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 81

aggacattgc atgagtgtga

20

<210> 82

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 82

agacaatgaa accctcctaa

20

<210> 83

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 83

tggcttggca gtcaggcctc

20

<210> 84

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 84

ccaggtttta caccagggt

20

<210> 85

<211> 20

<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 85  
gacaaaaggg ctgtggcgtg 20

<210> 86  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 86  
ccaccttctt ctttccgaag 20

<210> 87  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 87  
ctactttatt tggtaaaact 20